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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,819	08/04/2003	Masaaki Matsunaga	01165.0903	9219
7590 09/22/2004				
Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P. 1300 I Street, N.W. Washington, DC 20005-3315		EXAMINER WANG, GEORGE Y		
		ART UNIT	PAPER NUMBER	
		2871		

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

APC

Office Action Summary

Application No.

10/632,819

Applicant(s)

MATSUNAGA ET AL.

Examiner

George Y. Wang

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 2-4 and 8-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Claims 1 and 5-7 in the reply filed on August 26, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on December 19, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 2871

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natsunaga (U.S. Patent No. 5,548,423) in view of Masaki (U.S. Patent No. 4,636,817) and Ohta et al. (U.S. Patent No. 4,614,954, hereinafter "Ohta").

5. As to claim 1, Natsunaga discloses a liquid crystal shutter comprising cells for exposure formed as a plurality of shutter rows on a transparent substrate and built in an exposure device to control the exposure of a photosensitive medium, where the shutter comprises two transparent substrates (fig. 8, ref. 61) including liquid crystal (fig. 8, ref. 62).

However, the reference fails to specifically disclose staggered shutter rows and a partitioning wall between shutter rows.

Masaki discloses a liquid crystal shutter for an optical printer with staggered shutter rows (abstract).

Ohta discloses a liquid crystal shutter with a LC panel having spacer walls (fig. 10, ref. 45) for defining the interval between the substrates.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have staggered shutter rows and a partitioning wall between

Art Unit: 2871

shutter rows since one would be motivated not only to define the interval between the substrates (Ohta, col. 8, ref.14-19), which partitioning walls would create, but also to use a staggered configuration to effectively prevent dot image blurring so that resolution and sharpness of the image can be improved (Masaki, col. 3, lines 10-17).

6. Regarding claims 5-7, Natsunaga discloses the liquid crystal shutter as recited above, however, the reference fail to specifically disclose the plurality of cells being arranged to satisfy the relationship $Q=NP$, where Q is the pitch of the shutter row, P is the pitch of the two cell rows, and N is a positive integer larger than two. Furthermore, the references fail to specifically disclose the pitch, Q being longer than the distance larger than the distance equal to the sum of the width of the partitioning wall and twice the width of the wall fringe, where the width of the fringe is not less than $2\text{ }\mu\text{m}$.

Masaki discloses a liquid crystal shutter having a distance between adjacent shutter apertures in each row being 1.2-2.0 times the length of one shutter aperture and where the distance between adjacent shutter apertures in each row is 2.4-3.4 times the length of one shutter aperture (col. 2, lines 15-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the plurality of cells being arranged to satisfy the relationship $Q=NP$, where Q is the pitch of the shutter row, P is the pitch of the two cell rows, and N is a positive integer larger than two, where Q being longer than the distance larger than the distance equal to the sum of the width of the partitioning wall and twice the width of the wall fringe, which is not less than $2\text{ }\mu\text{m}$, since one would be

Art Unit: 2871

motivated to effectively prevent dot image blurring so that resolution and sharpness of the image can be improved (col. 3, lines 10-17).


Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw
September 13, 2004


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER